Why are California Plastic Policies Not Working?

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There are four major existing California environmental laws that relate to plastics. Three of the laws, AB 939, SB 235, and SB 951, are under jurisdiction of the CIWMB. The fourth law, AB 2020, is under jurisdiction of the DOC. These four laws, both individually and combined, are flawed with regard to effectively managing California's plastics, and hence the State's plastic issues are not being adequately addressed.

Plastics Have Not Been Effectively Incorporated into California's Integrated Waste Management Program (AB 939)

The Integrated Waste Management Act of 1989 (AB 939) established a new approach for managing California's waste stream, one that created a hierarchy of waste prevention first, followed then by recycling and composting. Central to AB 939 were mandated goals of 25 percent diversion for each city's/county's waste from landfills by 1995, and the highly ambitious goal of 50 percent waste diversion generated within each jurisdiction for 2000. The legislature amended this statute in 2000, requiring jurisdictions to sustain their waste diversion efforts into the future.

There are several successes and failures of AB 939 recycling and landfill legislation, as it relates to plastic. AB 939 compliance requires that all city/county California jurisdictions meet the 50 percent diversion goal.

AB 939: Recycling and Landfill Legislation

Successes

- City/county jurisdictions have achieved diversion rates by tailoring waste handling infrastructure options that include curbside recycling, material recovery facilities, and composting operations, that are supported by waste prevention and public education efforts
- The State's diversion and recycling infrastructure now represents an investment of hundreds of million of dollars of public and private sector funds. California's reuse and recycling industry employs over 60,000 workers, with a several billion dollar payroll

Failures

- The State has not met its overall 50 percent waste diversion goal, though several jurisdictions have met or exceed the 50 percent goal. In 2002, approximately 100 California jurisdictions exceeded the goal, but this number is less than twenty-five percent of the 444 reporting jurisdiction diversion programs
- There are a number of reasons why most California jurisdictions have not met their 50 percent diversion mandate including:
  - The State's economy soared in the 1990's, driving up estimated waste generation nearly 50 percent, from 45 million tons in 1989, to over 66 million tons in 2000
  - The relatively high costs for collecting and sorting recyclables of sufficient quantity and quality, and the challenges of maintaining markets for recyclables
  - The ambitious original 50 percent waste diversion goal

AB 939 is strictly a weight based system that does not favor plastics recycling in relative terms of helping to meet overall AB 939 goal attainment. Heavier materials, like paper, and construction & demolition, provide more potential diversion points (approximately 30 and 15 percent, by weight, respectively, of California's disposed waste); whereas plastics make up only 8.9 percent of total California disposed waste weight (versus over 15 percent by volume). Also, the built-in incentive of AB 939 to maximize weight quantity diverted, rather than quality collected, is generally counter to market demands for plastic recyclable materials.

Plastics recycling does contribute some towards AB 939 diversion. As a result of AB 939, and AB 2020, most local California jurisdictions have chosen to expand their curbside programs to include plastics recycling, even though it is expensive and jurisdictions have difficulty marketing some of their collected plastics material.

In order for communities' curbside programs to access curbside assistance payments (California Redemption Value) from the DOC, they must collect all plastic resin types. However, of the seven major types of plastics packaging (classified by the Society of Plastics Industry), only two resin types, # 1 and # 2 (PET and HDPE, respectively), are actually recycled at the curb to any significant degree in California. Most California cities and counties now have some kind of curbside collection program that includes # 1 (PET) and # 2 (HDPE) plastic bottles, and while most jurisdictions also collect plastic resins # 3 through # 7, these other resin quantities collected are minimal.

In California, the costs to curbside collect PET and HDPE plastics are offset by a combination of market scrap value, and AB 2020 processing and CRV payments. The effective plastic economics of California's curbside collection programs are highly dependent on payments from the AB 2020 program.

For PET plastics from curbside, local operators receive scrap value (currently approximately $0.10 per pound), plus $0.30 per pound in CRV payments and a processing payment of $0.235 per pound (for the CRV proportion only). These total PET plastic revenues amount to approximately $1,140 per ton (for beverage and non-beverage CRV), and currently offset costs to collect and process PET plastics at the curb. HDPE plastics also have a commingled rate for curbside collected material, thus curbside operators can collect both CRV and processing payments for HDPE as well.

The costs of collecting, sorting, and marketing non-beverage container plastic resins # 3 to # 7, generated in some California municipalities, is not economical, and it can be financially cumbersome. Some California municipalities may collect and sort these non-beverage container other resins, only to have them landfilled, much to everyone's disillusionment.

Plastics curbside recycling is confusing to the general public, and even to "professionals" in the field. There is wide variation among local governments in both the types of plastics collected, and the way it is collected.

Some municipalities, like Sacramento County, collect only narrow-necked, # 1 and #2 plastics (includes soft drink bottles, water bottles, milk jugs, shampoo and conditioner bottles, and detergent and bleach bottles). Other municipalities, like the neighboring City of Sacramento, collect # 1 and # 2 plastic containers, and all California Redemption Value containers, including plastics # 3 through # 7. Both the City and County of Sacramento still do not accept, however, plastic bags, Styrofoam plastics, plastic food trays, and plastic cups. Both the County and City of Sacramento systems also use so-called "mixed recycling", which involves tossing all recyclables into a single large bin rather than requiring residents to separate plastics, aluminum, glass, and paper. Still other non-Sacramento communities currently require some separation of recyclables. In January 2002, only approximately 2 percent, by weight, of the mixed recycling in the City of Sacramento were plastics.

Some major communities around the country, such as the City of New York, have stopped collecting plastics at the curb all together for economic and other reasons. Critics of plastics recycling argue that it is expensive, does little to achieve overall recycling goals, and that processing used plastics often costs more than virgin plastics. Some environmentalists have even argued that increasing the capture rates of glass, paper, or yard debris can more cost-effectively, on the margin, divert resources from landfills, than collecting more plastics at curbside.

While relatively extensive commercial collection systems currently exist for film plastics, film also includes a large residential component. Film plastics are the single largest plastics component in California's landfills, and residential film is not generally being curbside collected at all, as it is too bulky and expensive to collect. Residential film plastics is highly problematic for California's curbside recycling, and the best that currently could be hoped for with residential film is to try to sort for it at a back-end materials recovery facility.

Plastics create several dilemmas and unanswered questions for California's AB 939 waste management program. There is confusion and inconsistency regarding the best practices for plastics curbside recycling in California, and there is controversy even on what the recycling goals of plastics should be for the various types of plastics. There is bewilderment at the consumer level on plastics recycling, and a general lack of agreement between government, industry, and environmentalists on what to do with plastics recycling under the AB 939 program. Without the major economic support of AB 2020, plastics curbside recycling in California would be struggling much further.

California's AB 939 waste management system currently may be able to only effectively collect # 1 and # 2 beverage container plastics. This "one size fits all" (i.e., all material types of aluminum, glass, plastics, paper, etc.), weight based system of AB 939, does not really effectively accommodate plastics. Curbside plastics recycling in California has a tough challenge under AB 939.

The Continuing Debate Over All Bottle Plastics Curbside Recycling in California

According to the American Plastics Council (APC), a trade organization for large plastic manufacturers, 95 percent of narrow-necked plastic bottles are made from # 1 or # 2 plastics. The APC argues that by asking communities to concentrate on just bottles, consumers will be recycling more of the most valuable plastics.

The APC wants more communities to go to the "all bottle" method because it is simpler, and they argue that more # 1 and # 2 plastic bottles are collected through this system. The APC argues that the simplified message "recycle all your plastic bottles" significantly increases collection of post-consumer plastic bottles. This APC program has had the support of several other industry trade associations such as the Association of Post-Consumer Plastic Recyclers (APR), the National Association for PET Container Resources (NAPCOR), and the National Soft Drink Association (NSDA).

In spite of the above APC policy, recycling coordinators in some California jurisdictions have been reluctant to adopt programs to collect all plastic bottles. Local government recyclers have cited concerns with potential for increased contamination (especially PVC plastics and residue disposal), increased costs of curbside collection and sorting (including mixed color HDPE), and overall reduced plastics material marketability.

Critics of the all bottle collection program argue that the APC initiative is not appropriate to show whether plastic curbside programs increase recovery of # 1 and #2 plastics, as asserted, any more than would other reinvigorated consumer education efforts. Another criticism of the all bottle program is that it creates the perception that # 3 to # 7 plastic bottles are finally being recycled, when in fact, these plastic bottles, in some cases, are not recycled.

The Rigid Plastic Packaging Container Law (SB 235) in California is Ineffective

The Rigid Plastic Packaging Container (RPPC) Act, SB 235, was originally passed in 1991. The intent of this plastics specific law was to "spur markets for plastic materials collected for recycling by requiring manufacturers to utilize increasing amounts of post-consumer recycled material in their rigid plastic packaging containers and to achieve high recycling rates for these plastic packaging containers."

After State regulations were finally developed, 1995 was the first year that this plastics law was actually implemented, four years after bill passage. In 1995, the overall RPPC recycling rate was above 25 percent, so all companies were in compliance with the law.

In 1996, food and cosmetic containers were exempted from the law. Also, in 1996, the RPPC recycling rate, for the first time, fell below 25 percent (23.2 percent).

The 1996 trigger event required companies to retroactively meet one of four compliance options for their RPPCs. These options are to (1) use 25 percent recycled content, (2) source reduce by 10 percent, (3) meet a brand-specific recycling rate of 45 percent, or (4) be reusable or refillable at least 5 times.

The CIWMB sent surveys to randomly selected firms, starting in 1998, to determine compliance with the law. It was found that a large share of the survey respondents were not regulated, not in compliance, or were unsure of their status. For 1996 through 1999, the CIWMB found about ten percent compliance with the RPPC Act.

Over the last three years, the CIWMB has signed compliance agreements for those companies not meeting the law's requirements with only 122 companies, and it is negotiating agreements with about 70 more companies in 2002. Compliance agreements for the RPPC law follow a basic template. An impacted company has six months to gear up to comply, and six months to prove compliance. Companies must submit interim reports on compliance and there are some special provisions for smaller companies. An impacted company that does not develop a compliance agreement could have to go to a public hearing, and a fine may be imposed. There are currently as few as four companies that may go to public hearings.

There are some successes and failures of SB 235 plastics packaging container legislation. The California recycling rate for RPPCs fell below 1995 levels in 2000, though total tons of RPPCs recycled has increased.

SB 235: Rigid Plastic Packaging Container Legislation

Successes

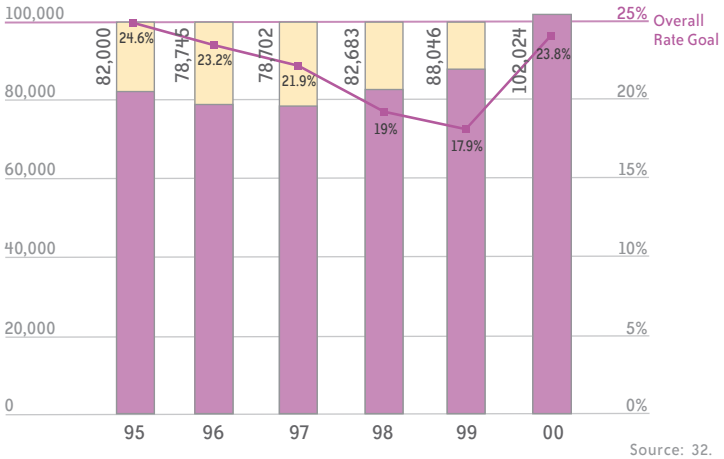
- Some companies that might not otherwise have considered using PCR, or source reducing RPPCs, have considered RPPC requirements as they design future products or specify packaging
- Six of seven surveyed companies that were out-of-compliance with the RPPC law in 1996 made changes to their rigid plastic packaging under compliance agreements, and are now in compliance with the law
- Obtained relatively higher compliance among some larger manufacturers
- Most of the companies in compliance during the first round of certifications were using PCR in their materials, at an average rate of 28.2 percent for the 253 containers using PCR
- Approximately 40 containers were source reduced an average of 14.5 percent

Failures

- Plastics are not meeting the 25 percent recycling rate goal for RPPCs, or the 55 percent recycling rate goal for PET. Both RPPC and PET rates fell below 1995 levels in 2000
- The law has relatively little impact on plastics recycling and markets, especially instate. Only 20 percent of the companies surveyed for 1997-99 were located in California
- There could be thousands of firms that are not aware that they are required to comply with the law
- The law creates perverse incentives to switch packaging from a regulated RPPC to another material, change containers, or reduce or increase container size to avoid regulation
- At least half of all RPPCs are exempt food and cosmetic containers
- In 1999, RPPCs comprised a total of 1.1 percent of the waste disposed, and 12.1 percent of the plastics waste disposed

The California RPPC Recycling Rate Has Declined While Total RPPC Tons Recycled Have Increased

Tons Recycled per Year and RPPC Recycling Rate



There are high costs to industry to effectively comply with the RPPC law and document compliance. For an average size company, from the time they receive notification from the CIWMB that they are subject to compliance, until a decision is made, costs could likely exceed $100,000 at minimum, not including costs of actually changing any company containers. If a new injection mold is needed for compliance, the cost to a company could be in the millions of dollars. Industry also spends a significant amount of money in lobbying related to this law. During the 2000 Legislative session, industry opponents to a possible expansion of the RPPC law spent approximately $4.5 million to lobby members of the California Legislature against expansion of the law.

SB 235 provides an ineffective and fragmented approach to dealing with only a small portion of California's plastic waste stream. Small firms, or those selling only a few RPPCs, have a difficult time meeting requirements of this law. Larger companies tend to be in compliance with the law, but they generally claim that it stifles packaging innovation, especially source reduction. Plastics source reduction under the law is difficult to measure and establish a baseline, and it is hard to verify source reduction within a RPPC.

The cost to the CIWMB for implementing and administering the RPPC law is high. There are approximately 10.5 CIWMB staff involved in this program, plus legal office, executive office, and Board member/staff time. If one assumes $70,000 in costs for each staff, there is a State cost of $735,000 per year for just direct staff costs alone.

Food and beverage containers are exempt from requirements of the RPPC law. However, interestingly enough, these same exempt containers are used to calculate the RPPC and PET statewide recycling rates under the law.

The RPPC plastics law overlaps with some plastics in the California beverage container program. For example 67 percent of the RPPCs recycled in year 2000 were CRV plastic program containers. The total tons of plastic containers recycled and reported through the California beverage container program account for over 95 percent of the RPPC and PET plastics used in the RPPC and PET recycling rate calculations for the SB 235 law.

The State of California is spending significant government and industry, time and money, for administrating and complying with the RPPC plastics law. On the benefit side, there has been little plastics environmental gain from this law, and the law has not made any significant impact on plastic recycling rates, or markets, in the State.

The Plastics Trash Bag Law (SB 951) in California is Obsolete

California's recycled content requirement law for trash bags by manufacturers of plastic trash bags, SB 951, was enacted nine years ago, in 1993. The intent of this plastics specific trash bag law was to encourage the diversion of polyethylene from California's landfills by establishing a market for it in plastic trash bags. SB 951 required all trash bags 0.75 mil, and greater, in thickness to use 10 percent recycled-plastic, post-consumer material (RPPCM), later increasing to 30 percent.

SB 698 was then signed into law four years ago, in 1998, and amended certain provisions of SB 951. SB 698 eliminated the 30 percent recycled-content requirement for trash bags, and replaced it with two compliance options for bags 0.7 mil, and greater, in thickness. These two options are (1) ensuring that a manufacturer's plastic trash bags contain a quantity of RPPCM equal to at least 10 percent of the weight of the regulated bags or (2) ensuring that at least 30 percent of the weight of material used in all of a manufacturer's plastic products intended for sale in California is RPPCM.

Plastic trash bags are made from various types of plastics, including HDPE, LDPE, LLDPE, and PET. Regulated plastic trash bags are between 0.7 and 2.0 mils in thickness. The used material that serves as feedstock for trash bags includes dry cleaning bags, grocery store bags, mattress bags, furniture bags, irrigation tubes, and stretch wrap.

Plastic trash bags under the law include garbage bags, composting bags, lawn and leaf bags, can-liner bags, kitchen bags, compactor bags, and recycling bags. There are approximately 21 regulated plastic trash bag manufacturers under the plastics trash bag law, 8 of which are located in California.

There are some successes and many failures of SB 951 plastics trash bag legislation. The plastics trash bag law in California is currently obsolete given the present secondary market demand for plastics film by makers of composite lumber. A major advantage of this lumber market is that it does not have the strict quality requirements of closed-loop trash bag recycling, and can thus take more polyethylene from the wastestream.

The CIWMB was required, before October 1, 2001, to make recommendations to the Legislature regarding the content of recycled post-consumer plastic in trash bags. The Board approved the following two recommendations at its September 2001, meeting: (1) increase the amount of RPPCM by an amount still to be determined and (2) remove the exemption from compliance for manufacturers who could not meet the RPPCM requirements, as stated by law.

In a January 2002, workshop at the CIWMB, industry raised serious concerns about these recommendations. Trash bag manufacturers, especially large companies, were finding it impossible to meet the 10 percent standard because there was not adequate quantity and quality of post-consumer film.

At the Board's May 2002, meeting, CIWMB staff presented additional options for trash bags, namely, (a) increase recycled content to "x" percent, (b) eliminate the exemption, (c) provide additional compliance options such as source reduction, biodegradable trash bags, or tradable credits, (d) make no changes in the law as it now exists, (e) defer any recommendation until after completion of the plastics white paper, (f) direct the Board to work with the DGS to develop a list of approved brands for sale to the State, and (g) eliminate the certification program. Staff recommended that the Board approve Options (f) and (g), but the Board choose option (e).

There are numerous problems with the plastics trash bag law. The law has a minimal impact on polyethylene diversion, which has much greater effective markets in the domestic composite lumber and export markets.

One lesson learned from the plastics trash bag law is that it is difficult to micro-manage plastic markets via minimum content requirements over a period of time. Plastics are subject to strong market forces and international dynamics, and it is difficult to artificially force closed-loop plastics recycling when market forces may dictate open-loop plastics recycling. Residential film plastics continue to present a challenging plastics management problem for the State, but would do so equally, with or with out, the plastics trash bag law.

SB 951: Plastics Trash Bag Legislation

Successes

- The use of recycled plastics in California by trash bag manufacturers in trash bags and other products has increased sevenfold over the last decade (from 2,000 tons to more than 14,000 tons), while creating business opportunities for a number of California manufacturers
- Almost one-half of all suppliers of recycled plastic for trash bags are located in California, and 78 percent of the 6,183 tons of recycled plastics used in California trash bags comes from California suppliers
- For small manufacturers of trash bags for sale in California, the amount of post-consumer material used has increased
- Using recycled post-consumer film in trash bags and other products has been shown to be an economically sound business decision for some manufacturers
- Technological trends in the manufacturing of trash bags may encourage more post-consumer content being included in trash bags (e.g., multi-ply bags that contain post-consumer film sandwiched between virgin film and development of new polymers resulting in the manufacture of stronger films with less material being used)

Failures

- The law applies to only about one-fourth of the trash bags manufactured for sale in California, and to none of the other film products
- Almost two-thirds of all bags produced according to California's minimum-content requirements are being sold by California manufacturers to users out-of-state
- The volume of bags imported into the U.S. has tripled in the past 5 years (almost 50 percent come from China)
- A sufficient quantity and quality of recycled resin does not exist to raise the amount of actual post-consumer content in bags above 10 percent, and large corporations make most trash bags for sale in California but generally exempt themselves from compliance for even the 10 percent requirement, due to unavailability, or poor quality, of post-consumer resins
- Proliferation of world markets for reprocessing film and manufacturing trash bags, as well as the creation of secondary markets and collection systems for plastics film by plastic lumber, siding, flooring, garden products, and traffic control industries, has resulted in a decreasing supply of post-consumer resins for use in domestic trash bags
- There is confusion over the legal definition of the kind of material to be used in trash bags (post-industrial versus post-consumer)
- There is a general shortage of post-consumer film for domestic trash bags due to the lack of collection programs and competitive demand for the small amount collected, particularly by manufacturers of plastics lumber and the like, and brokers who sell plastics film to foreign markets

Plastics Recycling Struggles under California's Updated Bottle Bill (AB 2020)

The California Beverage Container Recycling and Litter Reduction Act of 1986, AB 2020, is aimed at making beverage container recycling integral to California's economy. The primary goal of the program is to achieve, and maintain, high recycling rates for each beverage container type included in the program, thereby reducing the beverage component of litter in the State.

The AB 2020 law is a redemption program for beverage containers. The program is funded through redemption payments made to the DOC by beverage distributors on each beverage container sold in the State. Consumers pay the redemption when they purchase beverages.

Redemption payment revenues are deposited in the California Beverage Container Recycling Fund. Payments are made out of the Fund to consumers in the form of California Redemption Value (CRV) when consumers return empty beverage containers to certified recycling centers. The redemption payments are 2.5 cents for each container under 24 fluid ounces, and 5.0 cents for containers of 24 fluid ounces, or greater.

In January 2000, significant changes occurred within the AB 2020 program concerning plastics due to SB 332, which added non-carbonated fruit drinks, coffee and tea drinks, non-carbonated water, and sport drinks. In addition to adding many more plastic containers to California's bottle bill program, SB 332 now for the first time applied CRV to beverages sold in all of the seven (i.e. # 1 through # 7) plastic resin types. SB 332 also prescribed a $10 million public relations and advertising campaign to help implement new containers in the program.

In January 2002, SB 1906 added further plastic containers to the program. This law added non-carbonated soft drinks and vegetable juices in beverage containers of 16 ounces, or less, to the State's program.

Beverage containers now covered by the AB 2020 program include those filled with carbonated mineral and soda water and other similar carbonated soft drinks; non-carbonated soft drinks, wine coolers and distilled spirit coolers, beer and malt beverages; non-carbonated water, mineral water, sport drinks, coffee and tea drinks, vegetable juice in beverage containers 16 ounces or less; carbonated and non-carbonated fruit drinks that contain any percentage of fruit juice; and 100 percent fruit juices that are packaged in beverage containers less than 46 ounces in volume. The law does not include any beverage container products not specifically included by the Act, such as dairy products, wine, and liquor.

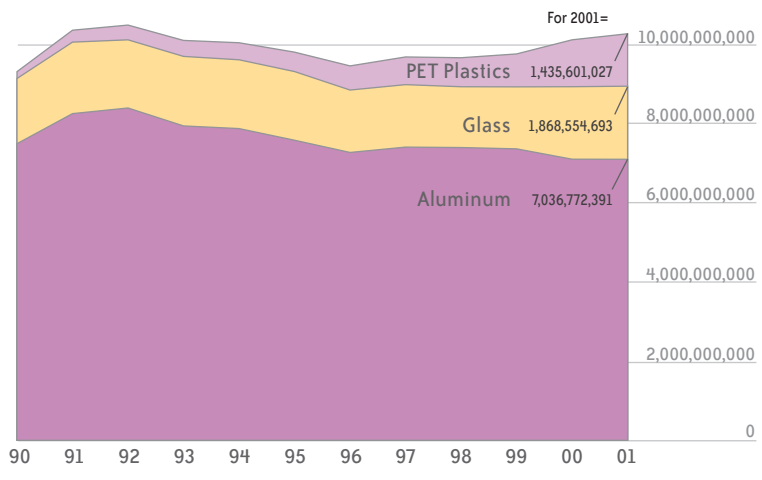
Changes made by SB 332, along with natural growth, increased the total program beverage container sales from 1999 to 2000, by 26 percent. In 2002, changes attributable to SB 1906, again coupled with natural sales growth, resulted in a 6 percent increase in program container sales. These are huge increases in the number of program containers and CRV assessments. Over 75 percent of this increase is attributed to plastic containers, primarily PET plastics.

With the two recent changes in the AB 2020 law (SB 332 and SB 1906), sales of CRV beverage containers continue to grow. In 2001, with close to 7 billion unredeemed program containers, this equals nearly $175 million in potential unpaid-out consumer funds.

In 2001, of the 17.5 billion containers sold in the program, approximately 4.6 billion, or 26 percent, were all types of plastics (of which 88 percent were PET plastics). This is both a significant number, and percent, of containers in the program, and plastics historically have generally not achieved their individual recycling goals.

There are successes and failures of AB 2020 bottle bill legislation as it relates to plastics. Even though the California PET beverage container recycling rate was 65 percent in 1999 (and 36 percent in 2001), with the highest PET beverage container recycling rate at 71 percent in 1994, the number of California PET beverage containers recycled has risen. PET beverage containers achieved the 65 percent container specific recycling goal four times in 14 years.

The Proportion of California PET Plastic Beverage Containers Recycled of Total AB 2020 Containers Recycled Has Risen



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AB 2020: Beverage Container Recycling Legislation

Successes

- The AB 2020 program is widely recognized as one of the most efficient, and cost-effective, of all the deposit state programs, with the California redemption value half the size of most deposit states
- Stakeholders that support the program, as well as critics, recognize that the program has a high level of public acceptance, has met many of its original goals, including helping with litter reduction, and has promoted a State recycling infrastructure and ethic
- Californians enjoy a convenient form of container recovery with nearly 2,000 recycling opportunities statewide. The program is also used as a funding source for various recycling and litter reduction programs throughout the State
- California's beverage container recycling program now includes over 17.5 billion containers, of which over 10.5 billion were returned for recycling in 2001. The CRV of 2.5 cents that consumers pay when they purchase beverages, now applies to more containers than ever before

Failures

- A goal of the program is to achieve an 80 percent recycling rate for all aluminum, glass, plastic, and bimetal containers sold in California. In 2001, the all materials recycling rate was 60 percent
- The highest the all materials recycling rate achieved was 82 percent (in 1992). For the fourteen year period, from 1988 through 2001, the all materials recycling rate was 80 percent or greater, for only four different years (1995, 1993, 1992, and 1991)
- The low recycling rate of 2001 is largely attributable to the addition of new beverages to the program in 2000 and 2001. However, in 1999, before the addition of new containers to the program, the all materials recycling rate was still only 74 percent, below the original all materials goal set over sixteen years ago
- Another goal of the program is to have each beverage container type achieve a recycling rate of 65 percent. In 2001, only one material type, aluminum, achieved this goal with a 75 percent recycling rate. In 2001, the recycling rates for glass, #1 PET, and #2 HDPE, were 54 percent, 36 percent, and 39 percent, respectively. In 1999, the glass and # 1 PET recycling rates were 60 percent and 65 percent, respectively
- Glass achieved the 65 percent goal seven times during the fourteen year period, 1988 through 2001, whereas #1 PET achieved the goal four times during this same period
- Beyond, #2 HDPE, the recycling rates for the other plastic resin types (# 3 (PVC), # 4 (LDPE), # 5 (PP), # 6 (PS), and # 7 (Other)) are tiny, at most a few percent, or less, each
- AB 2020, in spite of its successes, has failures. The program includes an array of complex command-and-control regulations, requirements, fees, and payments which lead to seemingly endless legislative "reforms"

PET beverage container recovery in California has grown tremendously over the past few years. In 2001 approximately 1.4 billion PET beverage containers were recycled in the State. In 1998, four years earlier, only approximately 0.7 billion PET beverage containers were recycled in California. The number of California PET beverage containers recycled has thus doubled in the last four years. On the other hand, the number of PET beverage containers sold in California during the same four year period went up over three times, from approximately 1.3 billion PET containers sold in 1998, to approximately 4.0 billion PET containers sold in 2001.

PET beverage containers recycled in the State can be viewed as both a success story and a continuing challenge for the AB 2020 program. PET containers recycling are a success because of the large absolute numbers of PET beverage containers that are recycled, largely due to the success of the AB 2020 recycling infrastructure. However, PET containers remain a large recycling rate challenge for the AB 2020 program because of the large and growing volume of PET containers sold in the State. The denominator (or containers sold), in the State's PET beverage container recycling rate continues to outgrow the numerator (or containers recycled). Part of the reason for the large growth in PET beverage containers sold in the State is due to the demand for single service PET containers, whose growth really took off after 1994.

The number of PET beverage containers recycled in the State is expected to continue to grow. However, it is difficult to expect that the PET beverage container recycling rate will catch up much without further refinements to the AB 2020 program and other changes to California's plastic policies.

The California bottle bill is unique among the states that have a beverage container return system because in the other deposit bottle states, the cans and bottles are returned to stores from which the containers were purchased. In California, redemption material is collected and redeemed by participant type, including certified recycling centers and reverse vending machines; curbside programs; and collection, drop-off, and community service programs. Most AB 2020 material types are redeemed at recycling centers, except for # 2 HDPE plastics, which have a larger percentage (65 percent), collected through curbside programs.

AB 2020 materials that are light and easy to handle, such as aluminum, and have both scrap value and CRV value, are primarily brought to redemption centers where consumers receive CRV and scrap value payments. AB 2020 material that is heavier, or less easy to handle, such as glass, # 1 PET plastics and # 2 HDPE plastics, will have a larger component collected by donation programs such as curbside programs, collection and drop-off programs, and community service programs. Still, 67 percent of # 1 PET plastic program containers, and 25 percent of # 2 HDPE plastic program containers, are collected at redemption centers.

The CRV for plastic program containers # 3 through # 7 are currently returned exclusively through redemption centers. This is possibly because curbside and donation programs have decided not to separate these types of plastic for redemption, so that redemption centers are the only possible avenue to redeem and separate the non- # 1 and non- # 2 plastic program container types. There is no curbside commingled rate for # 3 through # 7 plastic beverage containers so curbside operators can only claim these plastic beverage container types if they are sorted.

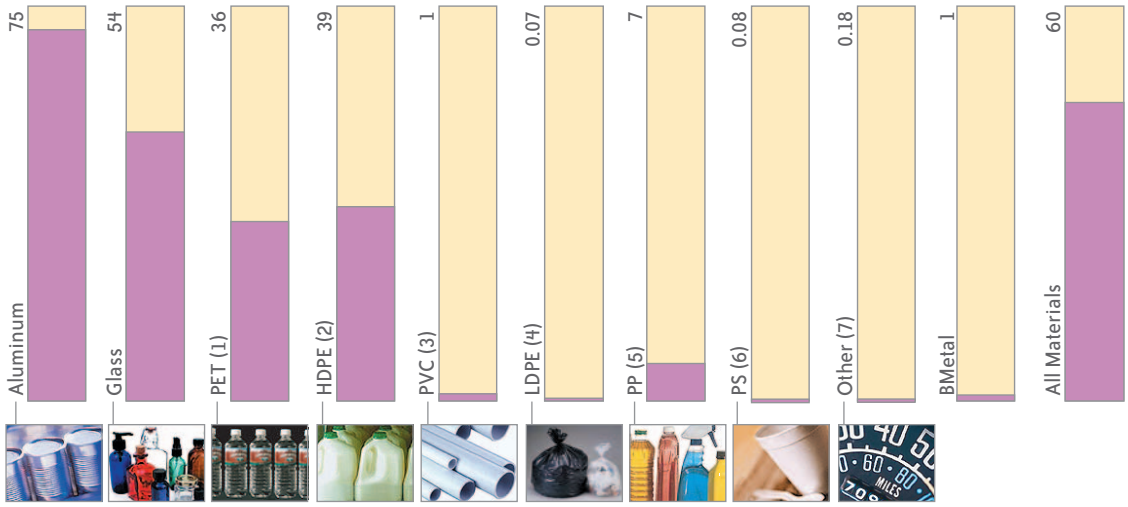
Traditionally, aluminum has always had, and still has the largest market share, per sales volume, compared to other material types, and the all material beverage container recycling rate generally follows the same trend as aluminum. There is very little market share for material types in the AB 2020 program other than aluminum, glass, and # 1 PET plastics. The glass market share in the program has remained fairly static in recent years. However, in the past two years, since inclusion of the new beverages and new plastic container types into the program, there has been a drop in the aluminum market share, and a gain in that for # 1 PET plastics. The result of this program shift is that the high recycling rate of aluminum now has a reduced impact on the overall AB 2020 program recycling rate, and the lower recycling rate of # 1 PET plastics now has a greater impact. Largely due to PET plastics, it will be even harder to achieve the all materials recycling rate AB 2020 program goal in the future.

In January 2000, when new beverages were added to the program they brought with them new containers also, namely # 2 HDPE, # 3 LDPE, # 5 PP, # 6 PS, and # 7 other plastics. The # 2 HDPE plastics already had an established market and they were being collected by most curbside programs for which they received a scrap payments only. Adding HDPE to the program did not require extensive adjustments for it to be collected, and the material had a program recycling rate of 22 percent in 2000, increasing to 38 percent in 2001. The California recycling rates for non-PET, and non-HDPE, plastic beverage containers was tiny in 2001.

Adding plastics # 3 through # 7 to the AB 2020 program has created significant unresolved issues for the program. These plastics were not typically collected previously and therefore have limited established markets. These non # 1, and non # 2, plastic resin types are sold in limited volumes and each have less than 1 percent market share of program beverage containers. Even if 100 percent of the # 3 through # 7 plastic beverage containers sold were redeemed in 2001, it would only raise the all material recycling rate by 1 percent.

California Recycling Rates for Non-PET and Non-HDPE Plastic Beverage Containers was Tiny in 2001

Recycling Rates in 2001



Source: 16.

SB 332 and SB 1906 added plastic containers with limited markets to the AB 2020 program, though these containers are a very small percentage of the total beverage container program. These two pieces of legislation, however, added a tremendous number of PET plastic containers to the AB 2020 program.

The container addition to the AB 2020 program has created concerns by some curbside programs regarding redemption by separate plastic resins. The DOC is reviewing the segregated and commingled rate structures to better accommodate the new plastic resin types. Currently there is a commingled (CRV + Non-CRV) payment rate for PET plastics and for HDPE plastics. There is no commingled rate for # 3 through # 7 plastics. There is only a CRV rate for these plastics, and this creates a particular problem for the curbside recyclers who must sort these containers in order to redeem them. The DOC is reviewing a commingled rate for # 2 through # 7 plastics so that curbside operators would be encouraged to redeem this plastic material. This DOC action would help recyclers, but some end users of HDPE are concerned that it will also adversely impact the quality of redeemed plastic material.

AB 2020 is a complex program that concerns itself with only approximately three percent of California's waste stream. Even after the addition of new beverages, there is consumer confusion about what is, and what is not, in the AB 2020 program. There is also confusion about how AB 2020 overlaps, or not, with the State's RPPC program.

For example, HDPE milk jugs are not in the AB 2020 program. Some plastic juice containers that are # 6 PS plastics, and have sealed foil lids that are not re-closeable (making it a beverage container), are new to the AB 2020 program. However, plastic clam shells (also # 6 plastics, but Expanded Polystyrene (EPS)), have a re-closeable lid, making them a RPPC. Finally, common "Styrofoam" coffee cups (EPS) are outside the boundaries of both the DOC bottle bill and the CIWMB RPPC program. All of this plastics container parceling is confusing to professionals working in the area, let alone consumers, and it defies both common sense and practicality.

While long-term structural plastic issues have not changed materially in the last 20 years, there has been significant plastic change in California with expansion of California's bottle bill program. Some of the changes to AB 2020 are still emerging, and time will tell if the beverage container program can accommodate the tremendous influx of PET plastic containers in terms of recycling rates.

Plastics create several dilemmas and unanswered questions for California's AB 2020 bottle bill. Can AB 2020 now meet its overall recycling goal with the now larger percentage of plastics? Should it still be mandatory for all redemption centers to take back all types of plastic beverage containers? Should we really be collecting plastics # 3 through # 7 plastics through this program at all?

Does there now need to be a different and higher CRV for plastics? Do we need material specific funds so that plastics would have their own earmarked, unredeemed CRV fund, versus the present common central DOC fund?

Is industry paying its fair share plastics processing fee if manufacturers are to internalize the cost of recycling their containers? Because there is very little plastics scrap value, the plastics processing fee is essentially the cost of recycling. Do we need a new, much higher processing fee for each plastics type # 3 through # 7, versus the one overall plastics processing fee such as we now have? Prior to the year 2002, beverage manufacturers paid the processing fee based on the number of containers recycled, not sold, and now the processing fee is supposed to be paid on the much larger number sold. Will industry actually pay much higher plastic processing fees for different plastic resin types?

Some of these policy issues may be resolved by current legislation and upcoming DOC actions. The DOC will be doing a cost-to-recycle study for each plastic resin type in early 2003. It is expected that the calculated costs to recycle these new program plastic resin types will be quite high.

The forthcoming new processing fee for each plastic resin, that is supposed to be implemented in January 2004, along with any new potential legislation that pushes the processing fee higher for containers with lower recycling rates, could have a major impact on California's viability of putting beverages in containers other than PET and HDPE plastics. Will industry really pay a potentially very high processing fee for plastic resin types # 3 through # 7 so as to guarantee that each container "pays its own way"?

Some argue that AB 2020 is in a transitive state, and with the new plastic processing fees forthcoming in 2004, that redemption centers will get fairly compensated once the AB 2020 program is fully operational. Many program participants argue not to make any further changes to AB 2020 until the real impacts of SB 332 can be ascertained. While all these upcoming actions should improve plastics recycling within the program, we question if the AB 2020 system will ultimately be able to effectively accommodate all kinds of plastics.

California's AB 2020 bottle bill may only be able to effectively take back # 1 and # 2 plastic program containers. Does the one size fit all approach (i.e., all material types) of AB 2020 now fit plastics, and all subcategories of plastic? California's AB 2020 bottle bill also has a tough challenge concerning plastic beverage containers.

Plastic Issues Have Not Been Adequately Addressed in California

Of the four major California laws that concern themselves with plastics none come close to effectively managing the State's plastic issues. Additional focused improvements to the State's existing laws, overtime, will likely be unable to address the unique and fundamental, long-term structural characteristics of plastic issues.

Two of the State laws, AB 939 and AB 2020, concern themselves with multi-material types beyond plastics, and two of the laws, SB 235 and SB 951, only focus on a narrow segment of plastics. Both sets of State laws have little future potential for managing the broad and complex range of plastic issues that the State presently faces.

The two diverse, multi-material (including plastics) State laws, AB 939 and AB 2020, struggle to adapt to the unique and heterogeneous attributes of plastics. These two laws, the largest and most significant of the four, have had much greater success with the other more homogeneous, non-plastic material types. For these two State laws, "one size does not fit all" for plastics overall, and for the different types and applications of plastics within the overall plastics material grouping. While AB 2020 has had success in PET plastics beverage container recycling, this is only one segment of overall plastics use.

The other two specialized plastic State laws, SB 235 and SB 951, are much too narrowly focused on only a sliver of plastic types and issues. These two laws also have proven themselves inflexible to adapt to rapidly changing plastic technologies and market conditions.

All four of the California laws are fractionalized, or piecemeal in their own way with regard to plastics, even considering the two multi-material laws. At best, all these laws only try to address a small portion of the overall plastics management challenge. Two of the laws, SB 235 and SB 951, essentially became ineffective and obsolete upon their final actual implementation.

No matter how piecemeal, ineffective, and short-term focused are the four plastic State laws, there is subtle reluctance on the part of all major plastic stakeholders (government, industry, and environmentalists) to overly scrutinize these laws, let alone give them up entirely, or even temporary suspend them. Pragmatic stakeholder reasons favor the ineffective status quo State laws and institutions concerning plastics.

For government, each of these laws is now a known institution, with its own inertia and institutional infrastructure, and sometimes the "known" is more comfortable than the unknown is, and these programs have become vested by some management and staff. For industry, many companies have already adapted to these regulatory laws, and they are reluctant to overly criticize them as something much more onerous, from their standpoint, could come in its place. For environmentalists that have fought so hard over many years to get these plastic laws enacted, it is difficult to give up these "positions", when there is not a known and better replacement alternative.

All of the major plastic stakeholder groups usually often see only a relatively small portion of the overall statewide plastic issues (for example one plastics law application or one plastics container or resin type). Up to now, very few of the stakeholders have examined the totality, and cumulative impacts, of combined plastic waste management issues.

There are major inadequacies in our present California plastics management and regulatory system. These inadequacies will be highly challenging to address and change. However, there is now a need to reassess the role and effectiveness of each of California's four major plastic laws in terms of meeting our larger goal of optimizing plastics use, recycling, and disposal in California.

Our current plastics management and regulatory system is "not good enough" to meet the magnitude and significance of our State's cumulative plastic issues. There is a need to start considering new, realistic, and better alternatives to the current plastics management and regulatory system in the State.